cc: A. J. Dahl - 353
B. W. Karrh - N11400
L. J. Papa - 269
Pral File
I.C.

AR226-1595

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

PERSONAL AND CONFIDENTIAL

August 19, 1981

DR. R. J. CLAYTON
MEDICAL, WILMINGTON

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-866; PRAL Nos. 81-3517, 81-3520-3521; Notebook Nos. E22514,E26238)

As requested in you letters of 8/6 and 8/10/81, the 3 blood samples submitted then have been analyzed for perfluorooctanoate (C_8). Results and sample identification are given in the attached table.

As noted there, the analyses were done using a gas chromatographic method specific for C_8 (Lab Method Number ES-567) but results have been reported as ppm F for comparison with total organic fluorine analyses. Precision is $\pm$ 10% relative standard deviation over most of the concentration range, somewhat less at the lowest values. The lower limit for quantitation is 0.007 ppm F (0.01 ppm perfluorooctanoic acid), with a detection limit of $\sim$ 0.004 ppm which can be distinguished from the reagent background but not well quantitated.

Please contact me (772-4440) or L. J. Papa (772-2745) if you have any questions regarding the analyses. General questions on blood sampling can be directed to J. W. Raines or L. F. Percival.

S. S. Stafford

Attachment
jah

Key Words:
Perfluorooctanoic Acid
Perfluorooctanoate
Blood Analysis
GC

TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

Sample PRAL No.	Date Sampled	P.R.No.	Name	GC Analysis Date Analyzed	[C_8], µg F/g blood (b)
81-3517	8/6/81	-	[redacted]	8/11/81	0.043
81-3520	8/10/81	-		8/12/81	0.098
81-3521	8/10/81	-		8/12/81	0.33

(a) Analysis as described in Lab Method ES-567 ("Determination of Perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 4/3/81), using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard.

(b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total organic fluorine analyses. (ppm F = 0.688 x ppm perfluorooctanoic acid) Estimated uncertainty is ± 10% relative standard deviation. The lower limit for quantitation is 0.007 µgF/g. The detection limit is ~ 0.004 µgF/g, but concentrations in that range cannot be well quantitated and are reported as < 0.007. None detected (n.d.) is reported for samples with [C_8] $\lesssim$ 0.004 ppm. which cannot be distinguished from reagent background.